AMERICAN SOCIETY FOR TESTING MATERIALS

~ BULLETIN ~

ENGINEERS' CLUB BUILDING. 1315 SPRUCE ST. PHILADELPHIA, PA.

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Introducing the A.S.T.M. Bulletin

With the rapid growth of Society activities, both in our committees and in the development of cooperative work with other organizations, a growing need has been felt for a better means of communication with the members than the present Circular Letters appearing at irregular intervals, which as a rule have been devoted simply to routine Society business and which are now inadequate as a medium for properly informing the members and others about current Society affairs. Although the committee reports and papers are presented to the Society only at the annual meetings, we are continually at work. Many developments during the year in our committee work and in joint activities with other societies are of immediate interest to the members and to industry in general, and constitute "news" about our work that should be disseminated promptly.

It has therefore been decided to expand the facilities for publishing such information by issuing a Bulletin at approximately quarterly intervals, which will replace four of the Circular Letters. The remaining circulars, which will relate principally to details of the annual meeting and to nomination and election of officers, will be published as usual. We believe that in this way the average member will be kept in closer touch with every-day happenings in the Society and its committees, which will be of advantage both to the members individually and to the Society as a whole. The Bulletin will also be sent to the secretaries of a number of societies and to a selected number of technical and trade journals in this country and abroad, with the request that any matters of interest to their readers be given some space in their publications.

The Bulletin is particularly designed to afford the committees an opportunity to secure greater publicity of their work as it develops between annual meetings. It is not intended to publish in the Bulletin committee reports or technical papers, which as heretofore will be issued in the form of preprints for the annual meetings and afterwards published in the Proceedings with discussions. As much space as possible will be devoted to items of interest about committee activities, and committee officers are invited to submit such items to the Secretary of the Society.

The size and arrangement of the Bulletin has been determined after careful consideration of its purposes. We should be glad to receive comments and suggestions from the members, and to know that they appreciate the added service the Society is endeavoring to render.

1921 Annual Meeting

The Twenty-fourth Annual Meeting of the Society will be held at the New Monterey Hotel, Asbury Park, N. J., from June 20 to 24 inclusive. Monday, June 20, will be devoted to committee meetings. The first session of the Annual Meeting will be on Tuesday morning, June 21, and the closing one on Friday evening, June 24. In about a month a provisional program including announcement of entertainment features will be sent to the members.

Hotel Rates.—The New Monterey Hotel is operated on the American Plan. The following special rates per day have been secured for the members of the Society and their guests:

Rooms with Bath.	Per Day each Person.
Single room, private bath	$10.00
Double room, twin beds, private bath	9.00 and 9.50
Double room, double bed, private bath	9.00
Two or more connecting double rooms, each with twin beds, one bath	9.00
Large room for 3 or 4 persons, single beds, private bath	7.50
Rooms with Running Water	
Single room	9.00
Double room, twin beds	7.50
Double room, double bed	7.00
Large room for 3 or 4 persons, single beds	7.00
Rooms without Running Water	
Single room	8.00
Double room, twin beds	6.50
Double room, double bed (only a few rooms)	6.00

Public bathrooms are conveniently located on each floor.

Reservations.—While members who desire may reserve their accommodations now, it is believed that most of the members will wish to defer making their reservations until the program of the meeting has been distributed. At the end of April a provisional program will be mailed to each member, and with it a card addressed to the hotel management which it is preferred shall be used for making reservations.

Big Meeting Anticipated

From present indications the meeting in June will be the largest the Society has ever held. Probably in no year in the Society's history have committee activities been greater, and a number of interesting and important reports are in prospect, as the few notes about committee work which appear on another page will indicate. Separate sessions will be devoted to several important subjects. One on Petroleum

Products will be introduced by the report of Committee D-2, which is briefly described in another column, and will include papers on the refining of petroleum, the description of novel apparatus used in the testing of petroleum products, and on gasoline. Another session will be devoted to Road Materials, and in addition to the report of the committee on that subject will include papers on the composition of slags suitable for concrete, the measurement of impact, determination of percentage of asphalt to use in soil-asphalt mixtures, and tests of soil for use in sub-grades. Still another session will be devoted to Cement and Concrete, for which several valuable papers have been secured. A number of timely papers on iron, steel and non-ferrous metals are also scheduled for presentation, as well as several dealing with subjects of importance to the paint industry.

Investigation of Effect of Sulfur in Steel Progressing

The Joint Committee on Investigation of Effect of Phosphorus and Sulfur in Steel is making satisfactory progress in its work under the chairmanship of Dr. G. K. Burgess of the Bureau of Standards. The following is abstracted from publicity statements issued by the Joint Committee:

The program of tests is divided into two series: Series A covering six groups of material of varying phosphorus and sulfur content, the sulfur to be "residual" sulfur; and Series B, in which the sulfur may be added during the later stages of manufacture and in which the phosphorus and sulfur content may be considerably higher than in Series A.[1]

Thirteen heats of rivet steel, which form the first group of Series A, were made by the Carnegie Steel Co. under the supervision of the committee, with sulfur content ranging from 0.03 to 0.08 per cent, the steels being normal in all other respects. This material was made up into rivet bars and rivets according to a prescribed schedule, and duplicate tests are being conducted at the Watertown Arsenal and the U. S. Naval Experiment Station. A third lot of this material is being held at the Bureau of Standards for check purposes.

The work of the Joint Committee is at present carried on through three major committees, on Statistics, Manufacture and Tests. A fourth committee is being appointed to consider ways and means of making service tests.

The Committee on Statistics has prepared a comprehensive bibliography of the subject. The committee is collecting material, produced and used under commercial conditions, that has either given good service or failed in service, of either ordinary sulfur or phosphorus content or high sulfur or phosphorus content. Railroads and automobile manufacturers, and recently the steel casting industry, are cooperating with the committee.

In cooperation with the Bethlehem Steel Co., a beginning has been made by the Committee on Manufacture in securing material for the Series B Tests. Three heats of steel have been manufactured by the basic open-hearth process, having carbon contents of 0.18 – 0.22, 0.35 – 0.45 and 0.65 – 0.75 per cent, typifying plate and structural steels, forging steels, and wheel, tire and rail steels respectively. The original sulfur content of each heat was 0.04 per cent or below. Sulfur was added in the form of iron sulfide in a pouring box located between the ladle and ingot mold. For each carbon content it was aimed to have a series of sulfur contents ranging from 0.04 to 0.15 per cent. Twenty-four ingots were rolled to 4 x 4-in. billets and then portions of them for tests were further rolled to 1-in. rounds and 1-in. flats. In order to compare the effects of added and residual sulfur it is planned to remelt the discarded portions of the ingots in two lots, one high in sulfur and one low in sulfur.

The committee is now undertaking to secure material for the second group under Series A, comprising plates and structural shapes with carbon 0.16 – 0.22 per cent, manganese and phosphorus normal, and sulfur ranging from 0.03 to 0.08 per cent.

The Committee on Tests is preparing its report on the tests of rivet steel, which are nearly completed. Tests of the Series B material above described are now being made. The committee is also working upon an outline of tests to be applied to the used material that has been obtained.

[1] The program of tests adopted by the Joint Committee and the report of its work up to June, 1920, which includes a description of the rivet steel referred to in the succeeding paragraph, appear in the *Proceedings*, Vol. XX, Part I.

Joint Committee on Concrete Active

The Joint Committee on Standard Specifications for Concrete and Reinforced Concrete is now preparing a draft of its preliminary report which it is hoped will be available for the June meeting. The report will contain tentative specifications based upon the studies of sub-committees on aggregates, reinforcing, proportioning and mixing, forms and placing, design, details of construction, protective treatment and surface finish.

Translation of A.S.T.M. Standards Progressing

Two years ago the U. S. Department of Commerce completed the publication and distribution among consular offices in South America and elsewhere of a Spanish-English edition of sixty-two A.S.T.M. specifications particularly applicable to our export trade, including specifications for rails and splice bars, structural and reinforcing steels, steel forgings and castings, steel wheels and tires, steel and iron tubes and pipe, boiler steels, wrought-iron products, pig iron, cast-iron pipe, malleable and gray-iron castings, copper wire, copper bars, spelter, bronze, cement, linseed oil and turpentine. As rapidly as facilities permit these specifications in their latest revised form are being translated into French and will be published in a French-English edition and distributed by the Government as an aid to American export trade.

The importance of this application of our standard specifications to industry and commerce is evident. Information in detail about this work will be given to any who may be interested, upon request addressed to the Secretary.

Highway Research to be Coordinated

Realizing the urgent need for a systematic research program which will place road building on a sound engineering basis and make it possible to expend economically the large sums of money appropriated for roads, the Division of Engineering of the National Research Council, with the support of the U. S. Bureau of Public Roads, has undertaken to develop a National Highway Research Program. A conference was held on November 11, 1920, at which national societies, Government and State departments and educational institutions were represented. An Advisory Board on Highway Research was formed, consisting of representatives from about twenty organizations, which "will assist in outlining a comprehensive national program of highway research and coordinating activities thereunder; organize committees for specific problems; deal with ways and means; and act in a general advisory capacity."

The Society will be represented on this Advisory Board. The activities of Committee D-4 on Road Materials in the development of tests and specifications for road materials, and in conducting such investigations as are incident thereto, will be in no wise curtailed by this new movement, the primary object of which is to coordinate the several agencies that are at work on various aspects of highway development, which include economic theory, structural design, and character and use of materials. The work of a committee on the last-named subject has been effectively coordinated with the activities of Committee D-4.

American Engineering Council

The Executive Board of American Engineering Council, the managing body of the Federated American Engineering Societies, will hold its next meeting in Philadelphia on April 16, as guests of the Engineers' Club. The Society has joined with the Club in offering the facilities of its headquarters to the Board.

Society Aids in Development of American Standards

International standardization of zinc and zinc ores, including methods of sampling and analysis, has been proposed to the American Engineering Standards Committee by the Belgian Standardization Association. It was decided to cooperate with the Belgians in this work and as the first step the Standards Committee invited the A.S.T.M. and the American Zinc Institute to be joint sponsors for American standardization. The A.S.T.M. specifications and methods of analysis for spelter, which are generally accepted throughout the industry, will form the starting point of further standardization, which will include standards for sheet zinc, etc. A "Sectional Committee" of fifteen members, five each representing producers, consumers and general interests (the latter including three Government representatives), will be formally organized during April. Committee B-2 on Non-Ferrous Metals and Alloys is well represented on this committee and will be in close touch with its work.

The desirability of unification of existing specifications for insulated wire and cables for other than telephone and telegraph use, and the development of new standards where necessary, was decisively established at a recent conference held under the auspices of the Standards Committee. Uniform national standards, it was said, would remove one of the greatest difficulties under which American manufacturers are now laboring in developing export trade in wires and cables. It has accordingly been determined to undertake this project under the Rules of the Standards Committee and to include such subjects as standards for conductors, rubber, cloth and paper insulation, magnet wire, fibrous coverings, sheaths, armor and standard make-ups. The A.S.T.M. has already done considerable work in the preparation of specifications for bare copper wire and cables and rubber insulated wire and cable. A second conference to consider the best means of coordinating the activities of the several agencies that are at work in this field will be held in New York on April 7, at which the Society will be represented.

The following five standards of the Society have been approved as "Tentative American Standard" by the Standards Committee under its Rules of Procedure: Specifications and Tests for Portland Cement, as revised effective January 1, 1921; Specifications for Fire Tests of Materials and Construction; Test for Toughness of Rock; Method for Distillation of Bituminous Materials Suitable for Road Treatment; and Method for Sampling of Coal. Four other standards have been submitted by the Society and are under consideration by the Standards Committee: namely, Specifications for Soft or Annealed Copper Wire; Specifications for Lake Copper Wire Bars; Specifications for Electrolytic Copper Wire Bars; and Methods for Battery Assay of Copper.

New Activities Under Consideration

The Executive Committee has under consideration the expansion of the Society's activities along the following lines:

Preparation of specifications for corrugated metal culvert pipe (recommended by Committee D-4 on Road Materials);

Study of tests and specifications for heavy chemicals;

Study of tests and specifications for paper;

Study of tests and specifications for leather, with special reference to leather belting.

We are carefully considering the desirability of entering these fields both by soliciting appropriate papers for a future annual meeting and by the formation of committees. The Secretary will welcome any comments or suggestions from the members with respect to these topics.

Marked Activity in Development of Tests for Petroleum Products

This year has seen by far the greatest activity in the Society in the development of tests for petroleum products and lubricants. The need for standardization in this large and rapidly developing industry was recognized by the Executive Committee a year ago, when the scope of Committee D-2 on Lubricants was enlarged to include "Petroleum Products and Lubricants." The committee was reorganized and additional members appointed. It has now 27 producer and 30 non-producer members, a total of 57. The work of the committee is handled by seventeen sub-committees, some dealing with methods of test and some with specifications. While the committee has felt the necessity of first establishing methods of test before specifications are prepared, five sub-committees, covering petrolatum, gas absorbent oil, paraffin wax, grease and gasoline, have within their scope the preparation of both testing methods and specifications.

The committee held its final meeting prior to the annual meeting of the Society at the Bureau of Mines, Pittsburgh, on Saturday, March 19. Twenty-six members were present. The committee has prepared for presentation a revision of the Society's Standard Test for Flash Point of Volatile Paint Thinners, to make this test applicable to all volatile inflammable liquids. This test covers the use of the Tag Closed Tester, which was developed by the Society and which has already been widely adopted.

The committee has also prepared a revision of the Society's present Standard for Distillation of Paint Thinners, making this test applicable to all volatile petroleum products. The main changes made in the present standard are the substitution of maximum boiling point for dry point to designate the end point of distillation, and the use of cotton on the thermometer bulb. Both of these changes have already been adopted by the United States Government. The test itself has been elaborated in order to secure the greatest possible uniformity in results. This work has been done in collaboration with Committee D-1 on Preservative Coatings, which drew up the present test.

The committee has also prepared a revision of the Society's present Standard for Cloud and Pour Test, recommending at the same time the withdrawal of the Cold Test which it considers obsolete.

New Tests for Petroleum Products

The committee will present to the Society a number of new methods of test to be adopted as tentative. If adopted, they will be published and criticisms sought during the coming year from all interested persons. The tests are as follows:

Melting point of paraffin wax;
Viscosity of fuel oil by means of the Saybolt Furol Viscosimeter;
Determination of sulfur or corrosive sulfur compounds;
Determination of sulfur by the bomb method;
Determination of sulfur in illuminating oils;
Determination of precipitation in lubricating oils;
Determination of flash point of lubricants by the Cleveland Open Cup;
The determination of flash point by the Pensky-Martens instrument. This instrument is the standard instrument for the determination of flash of fuel oil;
Determination of saponification;
Determination of water by distillation, including the excellent apparatus recently devised by the U. S. Bureau of Mines;
Determination of water and sediment by centrifuge.

In addition, the report of the committee will contain a table of volume-temperature correction factors, a discussion of melting point of petrolatum, and a paper on oil and moisture in paraffin wax. The report will be one of the most valuable presented to the Society within recent years. It will be distributed as a preprint in advance of the annual meeting.

Committee Notes

It is desired to reserve space in each issue of the Bulletin for items of general interest about committee activities. Officers of committees are invited to prepare information of suitable character for publication on this page. One of the features it is desired to develop permanently is a schedule of committee meetings.

Committee A-2 on Wrought Iron will meet at Society headquarters, April 8.

Committee A-4 on Heat Treatment of Iron and Steel was enlarged at the 1920 annual meeting and has been quite active during the year. A comprehensive sub-committee organization has been effected to study heat treatment of rolled and forged carbon steel, steel castings, alloy steels and case-hardened objects. The committee is cooperating with committees of the Society of Automotive Engineers, the National Research Council and the American Society for Steel Treating. The next meeting of the committee will be held at the Society headquarters on April 4.

Committee B-2 on Non-Ferrous Metals will meet in New York, April 11.

Committee C-2 on Reinforced Concrete will meet at Society headquarters April 8.

Committee C-4 on Sewer Pipe will meet in New York, April 4 and 5.

Committee C-7 on Lime will meet in Washington on April 14 and 15 to consider the final reports of sub-committees for the year. These will deal with structural, chemical and agricultural lime, methods of analysis, plasticity, slaking, and use of lime in concrete highways.

Committee C-9 on Concrete and Concrete Aggregates met in New York March 31. Its annual report is expected to include specifications for fine aggregates, specifications for sieves, methods of making laboratory specimens of concrete, and a colorimetric test for sand and fine aggregates.

Committee C-10 on Hollow Building Tile, which was reorganized a year ago, has undertaken a comprehensive study of the subject. The committee expects to submit specifications for clay building tile at the June meeting.

Committee D-1 on Preservative Coatings met at the Society headquarters on March 22. A number of new specifications will be included in its report covering, for example, purity of raw and boiled linseed oil from South American seed, and white lead, red lead, zinc oxide, ochre and iron oxide pigments.

Committee D-4 on Road Materials met at the Bureau of Public Roads, Washington, on March 29 and 30. Among the standards which it expects to submit this year are methods of testing ductility of and determination of water in bituminous materials; specifications for various types of asphalt and tar for road treatment, for calcium-chloride for road treatment, and for slag and waterbound macadam. A test for flash point of road oils is being worked out in conjunction with Committee D-2.

Committees D-5 and D-6 on Coal and Coke, respectively, have made satisfactory progress in their work this year. The former committee is undertaking a study of classification and nomenclature of coal. The Coke committee is also studying nomenclature and is investigating the physical properties of coke.

Committee D-9 on Electrical Insulating Materials has held two meetings this year. It is hoped to complete work which will permit the presentation to the Society in June of new tests for insulating varnishes, for transformer oils and for porcelain. A large amount of work has been done during the current year on all of these subjects, particularly transformer oils. In connection with the latter, the results of experimental work done during the last three or four years by four different laboratories have been carefully analyzed and the conclusions utilized in the preparation of the specifications. It is expected to include these data in the annual report of the committee.

Committee D-10 on Shipping Containers will meet in Chicago on April 7. General specifications for wirebound boxes will be considered. A report on some recent tests of Douglas fir barrels will be presented and the committee's annual report determined upon.

Committee D-11 on Rubber Products has been very active during the year, having held three meetings since the last annual meeting. Most of its work has consisted in revising a majority of the specifications which had previously been issued by the committee. The fire and air hose and belting specifications are being extensively revised and will be submitted to the Society at the June meeting, together with a revision of the tentative insulated wire and cable specifications.

A new specification for rubber gloves for electrical workers will be proposed this year. A specification for rubber insulating tape is now under discussion. A revision of the methods of testing cotton rubber-lined hose is under consideration, together with the preparation of general standard methods of testing rubber products.

Committee D-13 on Textile Materials held a well attended meeting in New York on March 11, at which about forty members and guests were present. Subcommittee reports on nomenclature of mechanical fabrics, tolerances and imperfections of square woven builder tire fabric, classification and identification of cotton fibers, and testing machines and machine characteristics were received and acted upon. The committee expects to submit tentative standards covering nomenclature and tolerances and imperfections with its annual report.

500 New Members in 1921

This is the mark we have set for this year. We nearly reached it in 1920 with 466 new members. The present membership is 2932.

The Society is becoming an increasingly greater force in engineering and scientific circles. It is the only national society that devotes its entire energies to the study of engineering materials, and its membership should comprise every one who produces, uses or is otherwise interested in those materials.

The returns to members through Society publications alone are worth more than the membership dues,—these are $15 with no entrance fee,—aside from the opportunity for service on committees and the association that membership in the Society affords with others who are working in this broad field of materials engineering.

Tell your friends about the June meeting and the preprints of reports and papers, and hand them this Bulletin if you do not file it. They will want to join the Society and secure the preprints if they are interested in the study of engineering materials.

Three out of every five new members are secured by the individual efforts of our members. **Will you secure at least one new member this year? Use the accompanying application blank NOW.**

Society Publications

Proceedings.—The annual Proceedings for 1920 (Vol. XX) are issued in two parts: Part I, Committee Reports and Tentative Standards (848 pp.); Part II, Technical Papers (511 pp.).

Complete sets of the Proceedings from 1902 to 1920 with an Index to Vols. I–XII and separate copies of any of these volumes, with the exception of Vols. I and III, are obtainable in paper, cloth or half-leather binding.

Book of A.S.T.M. Standards is issued triennially in cloth and half-leather binding. The latest, 1918, edition together with supplements issued in 1919 and 1920 (1011 pp.) contains the 159 standards adopted by the Society.

Book of A.S.T.M. Tentative Standards contains the 66 tentative standards in separate book form in paper binding (346 pp.).

Separate Standards.—The standards and tentative standards are also printed separately so that single copies or any number of copies of any given standard or tentative standard can be supplied.

Miscellaneous.—Volume of annual reports of Committee D-1 on Preservative Coatings for Structural Materials for the years 1903–1914.

Final Report of the Joint Committee on Concrete and Reinforced Concrete issued in 1917.

The 1920 Year Book (membership list) of the Society.

Prices and further information concerning any of the foregoing publications will be gladly furnished. Inquiries and orders should be directed to:

American Society for Testing Materials,
1315 Spruce Street, Philadelphia.